IN THE SPECIFICATION:

Please replace the paragraph beginning at line 19, page 1 with the following rewritten paragraph:

In a magnetic disk drive, a magnetic medium (magnetic disk) is rotated by a spindle motor during operation, where the head is floating on the magnetic medium. If a power supply failure occurs in this ~~status~~ state, the head retracting operation is executed. When a power supply failure occurs, power from the power supply to the driver of the VCM for moving the head is stopped, so the energy for retracting the head to be used must be other than that of the power supply.

Please replace the paragraph beginning at line 7, page 2 with the following rewritten paragraph:

The former method is a mainstream method that is often used at ~~the moment~~ present. The latter method, which uses not the rotation energy of the spindle motor but electrically converted energy, is used for a disk apparatus which uses a small medium where energy to be stored in the spindle motor is not sufficient.

Please replace the paragraph beginning at line 13, page 2 with the following rewritten paragraph:

However the floating height of the head is becoming lower each year as the recording density of disks ~~improves~~ increases. This is making it difficult to implement both the surface roughness of

the CSS (Contact Start Stop) zone to prevent the absorption of the medium and slider, required for the CSS system which is a conventional mainstream system, and the floating of the head slider.

Please replace the paragraph beginning at line 8, page 3 with the following rewritten paragraph:

To solve this problem, the head retracting method shown in Fig. 17 to Fig. 19 has been proposed (e.g., Japanese Patent Application Laid-Open No. H5-54573 (especially, pages 3-4 and Fig. 2)). As Fig. 17 shows, the magnetic disk drive 100 moves the arm 108 including the head using the VCM (Voice Coil Motor) 110 in the radius direction of the magnetic disk 102 which is rotated by the spindle motor 104, and reads/writes the data on a desired track. The ramp (spreader) 106 is disposed at the circumference position of the magnetic disk 102, and the head arm 108 is retracted onto the ramp 106.

Please replace the paragraph beginning at line 1, page 5 with the following rewritten paragraph:

The velocity of approaching the spreader (ramp) 106 also disperses depending on the moving velocity and the position of the head when a power supply failure occurs, and it is possible that the arm 108 may contact the spreader 106 at high velocity and cause damage to the head assembly. Also it is difficult to design to safely retract (unload) the head with certainty at a velocity which does not cause damage to the head assembly, ~~since~~ because dispersion depending on the disk drive is large

~~due to~~ as a result of the dispersion of external force.

Please replace the paragraph beginning at line 1, page 6 with the following rewritten paragraph:

To achieve these objects, the head retracting method of the present invention is a head retracting method for retracting a head which at least reads information for an information recorded disk to a retract position according to the power supply failure, including a first step of controlling the head to move to a predetermined position in an opposite direction from the retract position such that the velocity of the head becomes constant in the vicinity of the predetermined position, and a second step of controlling the head to move to the retract position after the head ~~reached~~ reaches the predetermined position such that the velocity of the head becomes constant around the retract position.

Please replace the paragraph beginning at line 13, page 6 with the following rewritten paragraph:

The disk apparatus of the present invention is a disk apparatus for retracting a head which at least reads information for an information recorded disk to a retract position according to the power supply failure, including an actuator for moving the head, and a control unit which controls the head to move to a predetermined position in an opposite direction from the retract position such that the velocity of the head becomes constant at least around the predetermined position, and

controls the head to move to the retract position after the head ~~reached~~ reaches the predetermined position such that the velocity of the head becomes constant at least around the retract position.

Please replace the paragraph beginning at line 25, page 6 with the following rewritten paragraph:

The head actuator control circuit of the present invention is a head actuator control circuit for retracting a head which at least reads an information recorded disk to a retract position according to the power supply failure, including a power monitoring circuit for detecting the power supply failure, and an actuator control circuit which moving-controls the head to move to a predetermined position in an opposite direction from the retract position such that the velocity of the head becomes constant in the vicinity of the predetermined position, and moving-controls the head to move to the retract position after the head ~~reached~~ reaches the predetermined position such that the velocity of the head becomes constant at least around the retract position.

Please replace the paragraph beginning at line 11, page 7 with the following rewritten paragraph:

In this aspect of the present invention, the head reaches ~~to~~ the inner stopper at a predetermined position in an opposite direction from the ramp at a predetermined velocity when the power supply failure occurs, so the head can stop at the inner stopper at the predetermined position without receiving a shock regardless what position the head is in or regardless what velocity the head

is moving.

Please replace the paragraph beginning at line 16, page 10 with the following rewritten paragraph:

It is preferable that the head retracting method of the present invention further includes a step of ~~breaking~~ braking the actuator for moving the head for a predetermined time according to the power supply failure. Also in the disk apparatus of the present invention, it is preferable that the control unit ~~breaks~~ brakes the actuator for moving the head for a predetermined time according to the power supply failure. Also it is preferable that the head actuator control circuit further includes a ~~break~~ braking circuit for ~~breaking~~ braking the actuator for moving the head for a predetermined time according to the power supply failure.

Please replace the paragraph beginning at line 27, page 10 with the following rewritten paragraph:

According to this aspect of the present invention, ~~breaking~~ braking is executed when unloading starts, so the head can be unloaded stably even if the velocity of the head is ~~fast~~ great.

Please replace the paragraph beginning at line 3, page 11 with the following rewritten paragraph:

In the head retracting method, disk apparatus and head actuator control circuit of the present invention, it is preferable that ~~breaking~~ braking is executed by shorting both ends of the coil of the actuator for moving the head for a predetermined time according to the power supply failure.

Please replace the paragraph beginning at line 1, page 19 with the following rewritten paragraph:

Therefore when the arm 16 is driven with the constant voltage of the voltage V1, the velocity of the arm 16 converges to the velocity Vel1 defined by the voltage V1, regardless of the velocity and the position of the arm 16. In other words, regardless of the velocity and the position of the arm 16, the head (arm) 16 is driven to the inner side (opposite direction from the ramp) of the magnetic disk 12, and collides with the inner stopper 22 at velocity Vel1.

Please replace the paragraph beginning at line 16, page 21 with the following rewritten paragraph:

(S28) If the converted velocity v is at the slice value Slice 2 or less during the predetermined time T3, the MPU 62 judges that the head is caught in the groove 20-3 of the ramp 20 and is stopped, waits for the time T4 (see Fig. 6) for confirmation, and updates the control signal Control Signal to the voltage V3 (Volts) after the time T4 elapsed (see times (d) → (e) → (f) in Fig. 6). ~~Since~~ Because this voltage V3 has opposite polarity from the voltage V1 and is ~~higher~~ greater than the voltage V2, the lift 20-3 of the head (arm) 16 is pressed against the second flat face 20-4 of the groove 20-3 of

the ramp 20, and the head is retracted completely. The time of applying the voltage V3 is T5, and by this, the parking position of the groove 20-3 of the lift 28 becomes constant. Therefore retracting processing ~~completes~~ is completed.

Please replace the paragraph beginning at line 3, page 22 with the following rewritten paragraph:

In this way, after the power supply failure is detected, the head 16 is moved in an opposite direction from the ramp 20 by constant voltage driving. With constant voltage driving, the head is moved to a position opposite from the ramp 20 with a predetermined velocity with which BEMF of the VCM 18 and the drive voltage are perfectly balanced. When the head reaches the predetermined position (inner stopper), the head contacts against the stopper and the head velocity becomes almost "0". So by detecting the state where the head velocity is close to "0", the reaching of the head to the predetermined position is detected, and the head is unloaded by constant voltage driving in the ramp 20 direction. ~~And the~~ The head climbs over the ramp with a predetermined velocity with which the BEMF of the VCM and the drive voltage are perfectly balanced.

Please replace the paragraph beginning at line 18, page 22 with the following rewritten paragraph:

In this way, the head 16 reaches ~~to~~ the inner stopper at a predetermined position in an opposite direction from the ramp 20 at a predetermined velocity when the power supply failure

occurs, so the head can stop at the inner stopper at the predetermined position without shock, regardless of what position the head is in or regardless of what velocity the head is moving. The head is unloaded from the predetermined position at a constant velocity, so the head contacts the ramp and climbs onto the ramp at a predetermined velocity, which prevents damage to the head which would occur when contact force becomes excessive and the head contacts the magnetic disk with the arm inclined, therefore unloading completes with certainty. Because of this, a magnetic disk apparatus with high reliability can be implemented.

Please replace the paragraph beginning at line 6, page 23 with the following rewritten paragraph:

If necessary, retracting of the head may be detected by the BEMF of the VCM. ~~And by~~ By this the unload operation can be confirmed.

Please replace the paragraph beginning at line 27, page 24 with the following rewritten paragraph:

The VCM driver 36 drives the VCM 18 according to the instructions from the controller 40. The VCM driver 36 comprises a voltage mode driver 52, a ~~break~~ brake (short) circuit 56 and a drive mode selector 50, in addition to the current mode driver 54, as shown in Fig. 10. The current mode driver 54 and the voltage mode driver 52 output current and voltage according to the control signal (Control Signal) of the controller 40. The brake circuit 56 shorts both ends of the VCM coil 18-1

and brakes the VCM 18.

Please replace the paragraph beginning at line 9, page 25 with the following rewritten paragraph:

The drive mode selector 50 connects either the brake circuit 56, the current mode driver 54 or the voltage mode driver 52 to the VCM 18 depending on the ~~break/voltage/current~~ brake/voltage/current control mode of the controller 40. In normal seek control and track following control, the VCM 18 is driven by current using the current mode driver 54. The configuration of the controller 40 is the same as the one shown in Fig. 5.

Please replace the paragraph beginning at line 13, page 26 with the following rewritten paragraph:

(S32) The MPU 62 of the controller 40 sets the ~~break/voltage/current~~ brake/voltage/current control mode ~~Break/Voltage/Current~~ Brake/Voltage/Current Control Mode to the brake mode, and sends the ~~break~~ brake mode signal to the drive mode selector 50 of the VCM driver 36. By this, the VCM driver 36 shorts both ends of the coil 18-1 of the VCM 18 using the ~~break~~ brake circuit 56. The short time is T1. By this, current does not flow into the coil 18-1 of the VCM 18, so as the dotted lines in Fig. 11 show, the head velocity converges to "0" in all cases indicated by the dotted lines, regardless of the head velocity when the power supply failure occurs.

Please replace the paragraph beginning at line 24, page 26 with the following rewritten paragraph:

(S34) The MPU 62 of the controller 40 sets V1 [Volts] for the control signal Control Signal, and sets the ~~break/voltage/current~~ brake/voltage/current control mode ~~Break/Voltage/Current~~ Brake/Voltage/Current Control Mode to voltage mode, and sends both of these signals to the VCM driver 36. By this, the VCM driver 36 starts driving the VCM 18 with the voltage of V1 volts in voltage mode from the time "0" in Fig. 6.

Please replace the paragraph beginning at line 5, page 30 with the following rewritten paragraph:

(S50) If the converted velocity v is at the slice value Slice 2 or less during the predetermined time T5, the MPU 62 judges that the head is caught in the groove 20-3 of the ramp 20 and is stopped, waits for the time T6 (see Fig. 11) for confirmation, and updates the control signal Control Signal to the voltage V3 [Volts] after the time T6 has elapsed (see times (e) → (f) → (g) in Fig. 11). ~~Since~~ Because this voltage V3 has an opposite polarity from the voltage V1, and is higher than the voltage V2, the lift 20-3 of the head (arm) 16 is pressed against the second flat face 20-4 of the groove 20-3 of the ramp 20, and the head is retracted completely. The time of applying the voltage V3 is T7, and by this, the parking position in the groove 20-3 of the lift 28 becomes constant. ~~And by this~~ and the retracting processing ~~completes~~ is completed.

Please replace the paragraph beginning at line 20, page 30 with the following rewritten paragraph:

In this way, after the power supply failure is detected, ~~breaking~~ braking is executed for the VCM and then the head 16 is moved in an opposite direction from the ramp 20. ~~Since breaking~~ Because braking is executed, the head velocity is converted into "0", even if the seek velocity during seeking is fast. If constant voltage driving is used, the head is moved to a position opposite from the ramp 20 with a predetermined velocity with which the BEMF of the VCM 18 and the drive voltage are perfectly balanced. When the head reaches the predetermined position (inner stopper), the head contacts against the stopper and the head velocity becomes almost "0". So by detecting the state where the head velocity is close to "0", the head reaching the predetermined position is detected, and the head is unloaded by constant voltage driving in the ramp 20 direction. The head climbs over the ramp with a predetermined velocity with which the BEMF of the VCM and the drive voltage are perfectly balanced.

Please replace the paragraph beginning at line 10, page 31 with the following rewritten paragraph:

In this way, the head 16 reaches the inner stopper at a predetermined position in an opposite direction from the ramp 20 with a predetermined velocity after ~~breaking~~ braking is executed for the VCM 18 when the power supply failure occurs, so the head can stop at the inner stopper at a predetermined position without shock, regardless of what position the head is in or regardless what

velocity the head is moving. Also because of ~~breaking~~ braking, the head can reach the inner stopper at a predetermined velocity in a short time, even if the seek velocity during seeking is fast. The head is unloaded from the predetermined position at a constant velocity, so the head contacts the ramp and climbs onto the ramp at a predetermined velocity, which prevents damage to the head which would occur when contact force becomes excessive and the head contacts the magnetic disk with the arm inclined, therefore unloading completes with certainty. Because of this, a magnetic disk apparatus with high reliability can be implemented.

Please replace the paragraph beginning at line 19, page 33 with the following rewritten paragraph:

The VCM driver 36 drives the VCM 18 according to the instructions of the controller 40. The VCM driver 36 comprises a voltage mode driver 52, a ~~break~~ brake (short) circuit 56, a drive mode selector 50 and local controller 58, in addition to the current mode driver 54, as shown in Fig. 14.

Please replace the paragraph beginning at line 24, page 33 with the following rewritten paragraph:

The current mode driver 54 and the voltage mode driver 52 output current and voltage according to the control signal (Control Signal) of the local controller 58. The ~~break~~ brake circuit 56 shorts both ends of the VCM coil 18-1, and executes ~~breaking~~ braking of the VCM 18.

Please replace the paragraph beginning at line 2, page 34 with the following rewritten paragraph:

The drive mode selector 50 receives the power supply failure signal POWER SUPPLY FAILURE SIGNAL, and connects either the ~~break~~ brake circuit 56 or the voltage mode driver 52 to the VCM 18. When the power supply failure signal is not received, the current mode driver 54 drive the VCM 18 with current in normal seek control and track following control.

Please replace the paragraph beginning at line 25, page 34 with the following rewritten paragraph:

In other words, after the local controller 58 detects the power supply failure with executing the unload processing shown in Fig. 12, ~~breaking~~ braking is executed for the VCM and then the head 16 is moved in an opposite direction from the ramp 20. ~~Since breaking~~ Because braking is executed, the head velocity is converted to "0", even if the seek velocity during seeking is fast. When constant voltage driving is used, the head is moved to a position opposite from the ramp 20 at a predetermined velocity with which the BEMF of the VCM 18 and the drive voltage are perfectly balanced. When the head reaches the predetermined position (inner stopper), the head contacts against the stopper and the head velocity becomes almost "0". So by detecting the state where the head velocity is close to "0", the head reaching the predetermined position is detected, and the head is unloaded by constant voltage driving in the ramp 20 direction. The head climbs over the ramp at a predetermined velocity with which the BEMF of the VCM and the drive voltage are perfectly balanced.

Please replace the paragraph beginning at line 17, page 35 with the following rewritten paragraph:

In this way, the head 16 reaches the inner stopper at a predetermined position in an opposite direction from the ramp 20 at a predetermined velocity after ~~breaking~~ braking is executed for the VCM 18 when the power supply failure occurs, so the head can stop at the inner stopper at the predetermined position without shock, no matter what position the head is in or no matter what velocity the head is moving. Also because of ~~breaking~~ braking, the head can reach the inner stopper at a predetermined velocity in a short time, even if the seek velocity during seeking is fast. The head is unloaded from the predetermined position at a constant velocity, so the head contacts the ramp and climbs onto the ramp at a predetermined velocity, which prevents damage to the head which would occur when contact force becomes excessive and the head contacts the magnetic disk with the arm inclined, therefore unloading completes with certainty. Because of this, a magnetic disk apparatus with high reliability can be implemented.

Please replace the paragraph beginning at line 9, page 36 with the following rewritten paragraph:

In the above mentioned embodiment in Fig. 14, the local controller 58 performs the unload processing in Fig. 12, but may perform unload processing of the embodiment in Fig. 7. The number of magnetic disks mounted on the magnetic disk apparatus may be one or a plurality of disks. ~~And~~ ~~the~~ The structure of the ramp and the structure of the lift of the arm may have a different structure.

Please replace the paragraph beginning at line 16, page 36 with the following rewritten paragraph:

In the unload processing in Fig. 12, ~~break~~ brake processing is added, but ~~break~~ brake processing may be omitted except for the case where the head velocity is detected from the VCM counter electromotive voltage when the power supply failure is detected, and the head velocity is ~~faster~~ greater than a predetermined velocity. The ~~break~~ brake time is fixed, but the velocity of the head is detected and ~~breaking~~ braking may be continued until the velocity of the head becomes a predetermined velocity or less.

Please replace the paragraph beginning at line 3, page 37 with the following rewritten paragraph:

As described above, the head reaches ~~to~~ the inner stopper at a predetermined position in an opposite direction from the ramp at a predetermined velocity when the power supply failure occurs, so the head can stop at the inner stopper at the predetermined position without shock, regardless what position the head is in or regardless what velocity the head is moving.